REMARKS

The present response is to the Office Action mailed in the above-referenced case on May 20, 2003. Claims 1-13 are standing for examination. The Examiner has objected to the specification, drawings and claims due to various informalities. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parady (U.S. 5,933,627), hereinafter Parady, in view of McFarling et al. (U.S. 5,758,142), hereinafter McFarling.

Regarding the Examiner's objections to the specification, drawings and claims, applicant herein amends the specification and claims to provide appropriate corrections.

Regarding the Examiner's merit rejections of applicant's claims, applicant has carefully studied the prior art references cited an applied by the Examiner, and the Examiner's rejections and statements in the instant Office Action, and in response herein provides argument to more particularly point out and distinctly claim the subject matter of applicant's claims regarded as patentable, and to establish that the combined art clearly does not teach, suggest or intimate all of the limitations of applicant's claims. Applicant points out and argues the key limitations in applicant's claims, which appear to have been misunderstood by the Examiner in his rejections and statements.

Regarding claim 1, the Examiner has stated in the instant Office Action that Parady teaches a system for fetching instructions from individual ones of the multiple streams to a pipeline, comprising a fetch algorithm for selecting from which streams to fetch instructions. The Examiner admits, however, that Parady fails to teach a hit/miss predictor used to predict, for load instructions, whether a cache hit or miss will occur.

The Examiner relies on McFarling for teaching the deficiency in Parady, stating that McFarling teaches such a hit/miss predictor for predicting whether a

cache hit or miss will occur, and if a cache miss is predicted to occur, then instructions independent of the load are scheduled ahead of the load-dependent instructions. The Examiner further stated that a person of ordinary skill in the art would have recognized that this prediction scheme would be useful in a multi-streaming environment because a thread is a sequence of instructions that is independent from other threads, as known in the art, and therefore would have been obvious to one of ordinary skill in the art at the time of the invention to modify the thread-switching system of Parady to include the hit/miss predictor as taught by McFarling.

Applicant respectfully disagrees with the Examiner's interpretation of the teachings of McFarling, and argues that it's certainly would not have been obvious at the time of the invention to apply any of the teachings of McFarling to those of Parady to produce applicant's claimed invention.

Firstly, it appears to applicant, based on the Examiner's statements in item 8 (b) of the instant Office Action, that the Examiner does not appreciate the clear distinction between streams and threads in a multistreaming processor. The Examiner has stated that a person of ordinary skill would have recognized that the prediction scheme would be useful in a multi-streaming (multithreaded) environment because a thread is a sequence (stream) of instructions that is independent from other threads.

Applicant respectfully points out to the Examiner that, even if McFarling did teach a predicting scheme such as indicated by the Examiner, the Examiner's interpretation that it would have been obvious to apply the teaching for use in a multithreaded processor is clearly incorrect. Specifically, a *stream* in reference to a processing system is defined as a *hardware* capability of the processor for supporting and processing an instruction thread. A *thread* is the actual software running within a stream. For example, a multi-streaming processor implemented as a CPU for operating a desktop computer may simultaneously process threads from two or more applications, such as a word processing program and an object-oriented drawing program. As another example, a multi-streaming-capable

processor may operate a machine without regular human direction, such as a router in a packet switched network. In a router, for example, there may be one or more threads for processing and forwarding data packets on the network, another for quality-of-service (QoS) negotiation with other routers and servers connected to the network and another for maintaining routing tables and the like. The maximum capability of any multi-streaming processor to process multiple concurrent *threads* remains fixed at the number of hardware *streams* the processor supports. A multi-streaming processor is not necessarily a multithreaded environment, as alluded to by the Examiner, because a multi-streaming processor may operate a single thread, thereby operating as a single-stream processor with unused streams idle. There are clear distinctions between *threads* and *streams,* and applicant therefore strongly argues that the Examiner's combination of the teachings of Parady and McFarling is improper, as McFarling teaches nothing whatever to do with a multi-stream processor, as is specifically recited in applicant's base claims, and further, clearly does not teach or suggest the capability for practicing the invention in a multi-stream environment.

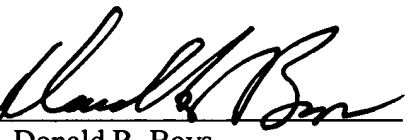
Applicant's claim 1 as amended to overcome the informalities, is therefore clearly and unarguably patentable over the combined art. independent claims 6 and 11 each specifically recite a multi-streaming processor and method for a multi-streaming processor, in accordance with the limitations recited in claim 1. Claim 6 has been herein amended to overcome the Examiner's objection due to informalities. Independent claims 6 and 11 are therefore also clearly patentable over the combined art, in view of applicant's arguments presented above on behalf of claim 1. Depending claims 2-5, 7-10, 12 and 13 are then patentable on their own merits or at least as depended from a patentable claim.

It is therefore respectfully requested that this application be reconsidered, the claims be allowed, and that this case be passed quickly to issue. If there are any time extensions needed beyond any extension specifically requested with this amendment, such extension of time is hereby requested. If there are any fees due beyond any fees paid with this amendment, authorization is given to deduct such

fees from deposit account 50-0534.

Respectfully submitted

Enric Musoll et al.

by 

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